REMARKS

Applicants have carefully reviewed the Examiner's Office Action of December 29, 2005 and provide this response to the issues raised in the Action.

Applicants have amended herein Claims 1- Claims 1, 12-15, and 17-18, and respectfully request reconsideration.

Rejection of Claims 1-19 Pursuant 35 U.S.C. § 103(a)

Claims 1-19 have been rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,004,676 issued to Girgis ("Girgis") in view of U.S. Patent No. 6,677,394 issued to Butterbach et al. ("Butterbach). Applicants respectfully traverse the rejection of Claims 1-19 for the reasons given below.

Independent Claim 1 has been amended herein and is directed to a flexible reinforcement member for a communications cable comprising a plurality of high modulus fibers; a primary saturant coupled to said plurality of high modulus fibers such that said primary saturant fills interstices between said high modulus fibers, serves as a matrix in which said plurality of high modulus fibers is dispersed and encased, and forms a strand of said primary saturant and said plurality of high modulus fibers; said primary saturant having a melting point below approximately 300 degrees Celsius and a melt viscosity of less than approximately 1000 centipoise; and an outer layer of a high molecular weight, nonwater-based, water-swellable polymer coupled to said primary saturant such that said outer layer surrounds said strand.

The Examiner indicates in the Action that Girgis substantially discloses the flexible reinforcement member as claimed with the exception Girgis does not specifically disclose a higher molecular weight, water-swellable polymer topcoat coupled to the primary saturant, while Butterbach discloses such high molecular weight, water-swellable, polymer topcoat. Therefore, the Examiner concludes it would have been obvious to one having ordinary skill in the art to combine the teachings of Butterbach with Girgis to provide the claimed reinforcement member. Applicants respectfully disagree.

Applicants respectfully submit the cited combination of prior art patents does not achieve the invention recited in Claim 1. In addition, Applicants respectfully submit that

neither Girgis nor Butterbach, alone or in the suggested combination, provide the motivation to modify the teachings of either Girgis or Butterbach to achieve the claimed invention. Applicants therefore respectfully submit the invention recited in Claim 1 in patentably distinct from Girgis in view of Butterbach.

Girgis discloses a reinforcement strand for use in a cable assembly including a plurality of sized glass fibers having a dried residue of a secondary aqueous coating composition on fiber surfaces. (col. 2, lines 14-16; col. 3, lines 25-29). The term "sized" as used in Girgis refers to an aqueous composition applied to the glass fibers after formation of the glass fibers and before the application of the secondary aqueous coating composition. (col. 3, lines 30-29-32). The secondary aqueous coating composition includes a first polymer and a second polymer, wherein the first polymer is a water-soluble, emulsifiable (in water) or dispersible (in water) polymer. (col. 4, lines 3-26).

In addition, Girgis discloses a method of forming such a strand including applying an aqueous sizing composition to surfaces of glass fibers and at least partially drying the sized fibers at room temperature or at elevated temperatures, such as in suitable ovens for drying glass fibers. (col. 2, lines 41-44; and col. 12, lines 44-46). The glass fibers are then gathered to form a strand of generally parallel fibers. (col. 2, lines 44-45; and col. 12, lines 59-61) The secondary aqueous coating composition is then applied to the strand and at least partially dried such that the strand has a dried residue of the coating. (col. 2, lines 45-46 and lines 55-58; col. 12, lines 63-65; col. 13, lines 40-45).

In the Office Action, the Examiner relies upon Girgis to conclude that the invention of Claim 1 is substantially disclosed with the exception noted above. The Examiner relies upon Girgis' disclosure at column 2, lines 14-16, as disclosing the claimed primary saturant, wherein such disclosure reads: "reinforcement strand comprising a plurality of sized glass fibers having on a surface thereof a dried residue of a secondary aqueous coating composition . . ." (emphasis added). Applicants respectfully submit that the disclosed sizing on surfaces of the glass fibers as well as the dried residue of the secondary coating on surfaces of the glass fibers does not teach, suggest or disclose the primary saturant of Claim 1. The claimed primary saturant is *coupled to said plurality of high modulus fibers such that said primary saturant fills interstices between said high modulus fibers, serves as a matrix in which said plurality of high modulus*

fibers is dispersed and encased, and forms a strand of said primary saturant and said plurality of high modulus fibers. Applicants respectfully submit that neither the aqueous sizing composition nor the aqueous secondary coating composition teaches, suggests or discloses the claimed primary *saturant*. "Sizing" is defined as: "a treatment of a fabric or other surface with a size."[1] In addition, as a noun, "size" is defined as: "any of several gelatinous or glutinous substances usually made from glue, wax, or clay and used as a glaze or filler for porous material," and, as a verb, is defined as: "to treat or coat with size or a similar substance."[2] A "saturant" is defined as: "a substance used to saturate", and "saturate" is defined as: "to cause (a substance) to unite with the greatest possible amount of another substance; to soak, fill or load to capacity."[3] Based upon the ordinary meaning of such terms, Applicants respectfully submit the primary saturant as claimed is not taught, suggested or disclosed by the sizing composition of Girgis because the primary saturant is not a surface treatment or coat as is the sizing of Girgis. Rather, the primary saturant couples or unites with the high modulus fibers such that it *fills interstices between said high modulus fibers* and *serves as a matrix in which said plurality of high modulus fibers is dispersed and encased.* In other words, the primary saturant is not a mere surface treatment or coating, but serves as a matrix that structurally disperses and encases the high modulus fibers. A "matrix" is defined as: "a substance containing something; a substance in which something is embedded or enclosed."[4] In addition, "encase" is defined as: "to surround something completely with a case or cover."[5] Therefore, by serving as a matrix, the primary saturant disperses and encases the high modulus fibers within the primary saturant. The sizing composition of Girgis is not a matrix within which the glass fibers are dispersed and encased.

Further, the claimed primary saturant not only saturates and protects the high modulus fibers by surrounding or filling interstices between the fibers, but it also helps to form the strand of primary saturant and high modulus fibers. The primary saturant

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[1] The American Heritage® Dictionary of the English Language: Fourth Edition, 2000, www.bartley.com, 6/29/2006.
[2] *Id.*
[3] *Id.*
[4] MSN Encarta Dictionary, www.encarta.msn.com, 6/29/2006.
[5] *Id.*

thereby helps to impart structural properties to the reinforcement member as well as to disperse and encase the high modulus fibers.

In contrast, as mentioned above, the sizing of Girgis merely treats the surface of the glass fibers and does not disperse and encase the glass fibers or form a strand of the sizing and glass fibers. In fact, Girgis discloses that after the glass fibers are coated with the sizing composition "they are gathered" into a strand, suggesting the sizing offers no support with respect to dispersing and encasing the glass fibers or forming a strand of the sizing and glass fibers.

For similar reasons, the aqueous secondary coating composition of Girgis does not teach, suggest or disclose the claimed primary saturant. When the secondary coating is applied to the glass fibers, it is dried to thereby form a residue. A "residue" is defined as: "a substance left after an evaporation or distillation."[6] Applicants respectfully submit that the primary saturant is not taught, suggested, or disclosed by the surface residue that results from the aqueous secondary coating composition being dried after its application to surfaces of glass fibers. In this respect, the claimed primary saturant is not a residue because it is not subject to nor results from any process whereby some component of the primary saturant is removed once it is applied to high modulus fibers. In addition, the aqueous secondary coating composition, when applied to surfaces of glass fibers, does not disperse and encase the glass fibers within the coating nor form a strand of coating and glass fibers, but, rather, exits as a residue on surfaces of the glass fibers.

Moreover, both the sizing composition and the secondary coating composition of Girgis are aqueous compositions. The invention as claimed is directed to a reinforcement member comprising *an outer layer of a high molecular weight, nonwater-based, water-swellable polymer.* As discussed in the Summary of Invention section of the application specification, the invention is directed away from aqueous coating compositions in order to at least avoid water-based coatings that are expensive and require high energy, water-removal steps to remove aqueous components from such coating. Girgis thereby teaches away from the invention of Claim 1.

With respect to the high molecular weight, water-swellable polymer topcoat, the Examiner relies upon Butterbach. As amended herein, Claim 1 is directed to a

[6] General Chemistry Online, www.antoine.frostburg.edu, 6/29/2006.

reinforcement member including *an outer layer of a high molecular weight, nonwater-based, water-swellable polymer coupled to said primary saturant such that said outer layer surrounds said strand.*

Butterbach discloses a water-swellable thermoplastic composition or hotmelt adhesive suitable for coating metal foils or glass fiber-reinforced plastic reinforcing elements in cable constructions. (col. 2, lines 26-27; and col. 3, lines 59-52). In contrast to the claimed outer layer of water-swellable, nonwater-based polymer, the composition Butterbach discloses comprises three main components including a water-soluble or water-dispersible component containing at least one water-soluble or water-dispersible oligomer and/or polymer or copolymer. (col. 2, lines 26-34). Applicants respectfully submit that the water-swellable thermoplastic composition or hotmelt adhesive of Butterbach does not teach, suggest, or disclose *outer layer of a high molecular weight, nonwater-based, water-swellable polymer* of Claim 1. As discussed above, the invention is directed to use of nonwater- based components of the outer layer in order to at least avoid water-removal steps required to remove any aqueous component of the outer layer. In this respect, like Girgis, Butterbach teaches away from the invention of Claim 1.

Thus, Applicants respectfully submit that the cited combination of prior art references does not teach, suggest, or disclose the claimed reinforcement member and, in particular, does not achieve the claimed invention. More specifically, the combination of references does not teach, suggest, or disclose at least the claimed primary saturant that *fills interstices between said high modulus fibers, serves as a matrix in which said plurality of high modulus fibers is dispersed and encased, and forms a strand of said primary saturant and said plurality of high modulus fibers*, nor the claimed outer layer *of a high molecular weight, nonwater-based, water-swellable polymer coupled to said primary saturant such that said outer layer surrounds said strand..*

Moreover, Girgis and Butterbach are directed to water-based or water-soluble residues and sizing compositions or water-soluble composition components, respectively, that teach or suggest aqueous components or compositions for coating glass fibers. Use of such water-based components or coatings teaches away from the claimed invention. Therefore, one of ordinary skill in the art would not look to either reference to modify the sizing or residue composition of Girgis or the hotmelt adhesive of Butterbach for surface

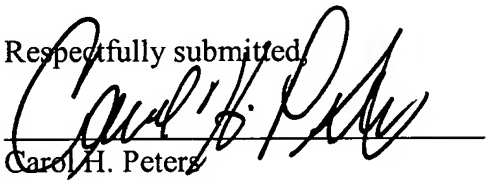
coating glass fibers or glass fiber-reinforced elements to achieve the claimed flexible reinforcement member including a strand of high modulus fibers dispersed and encased in a primary saturant and an outer coating of a high molecular weight, nonwater-based, water-swellable polymer surrounding the strand.

Applicants respectfully submit Claim 1 is patentably distinguishable from Girgis in view of Butterbach. Accordingly, Applicants respectfully request withdrawal of the rejection of Claim 1 pursuant to 35 U.C.S. § 103(a) as being unpatentable.

Without acceding to the correctness or appropriateness of the Examiner's bases for rejecting Claims 2-19, Applicants respectfully submit Claims 2-19 depend from Claim 1 and therefore are patentable for at least the reasons given above.

Based on the foregoing amendments and discussion, the present application is believed to be in condition for allowance, and an action to this effect is respectfully requested. Should the Examiner have any questions concerning this response, she is invited to telephone the undersigned.

Respectfully submitted,



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